

## CLAIMS:

What is claimed is:

1. A method of coating a gas turbine engine component using a powder coating  
5 process comprising:  
    providing a gas turbine engine component;  
    applying a powder coating to the gas turbine engine component using the  
powder coating process, wherein the powder coating is applied in a dry form without  
an organic solvent; and  
10      heating the applied powder coating to melt and fuse particles of the powder  
coating to the gas turbine engine component and cure the powder coating.
2. The method of claim 1, wherein the powder coating is applied by spraying and  
charging electrostatically the powder coating onto the gas turbine engine component.  
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3. The method of claim 2, wherein a tribo charging process or a corona charging  
spray process is employed.
4. The method of claim 3, wherein the gas turbine engine component is  
20 grounded.
5. The method of claim 4, wherein the powder coating comprises an inorganic  
based or organic based material.
- 25 6. The method of claim 5, wherein the powder coating is selected from the group  
consisting of a ceramic, glass/enamel/metal and a composite.
7. The method of claim 6, wherein the powder coating is selected from the group  
consisting of silica, alumina, zirconia, magnesium oxide, titanium oxide, yttrium and  
30 hafnium oxide.

8. The method of claim 5, wherein the coating is a thermal barrier coating.
9. The method of claim 5, wherein the gas turbine engine component is cleaned prior to application of the powder coating.
- 5 10. The method of claim 1, wherein the powder coating is applied by a powder coating process selected from the group consisting of an electrostatic spray process, a fluidized process and an electrostatic brush process.
- 10 11. The method of claim 1, wherein the component includes a non-metallic substrate.
12. A method of coating a gas turbine engine component using a powder coating process comprising:
- 15 providing a gas turbine engine component having an electrically conductive substrate;
- cleaning the gas turbine engine component prior to application of a powder coating;
- applying a powder coating to the gas turbine engine component using the
- 20 powder coating process, wherein the powder coating is applied in a dry form without an organic solvent; the powder coating process comprising spraying and charging electrostatically the powder coating through a spray gun onto the gas turbine engine component, which is grounded; and
- heating the applied composition to melt and fuse particles of the powder
- 25 coating to the gas turbine engine component and cure the powder coating.
13. The method of claim 12, wherein heat at a temperature between about 150-400°C for about 5 to about 30 minutes is applied.
- 30 14. The method of claim 12, wherein heat at a temperature between about 450-1538°C for about 5 minutes to about 24 hours is applied.

15. A gas turbine engine component comprising a powder coating thereon applied by the method of claim 1, wherein the powder coating is selected from the group consisting of a sacrificial coating, a thermal barrier coating, an anticorrosion coating  
5 and an oxidation resistant coating.

16. A gas turbine engine component having a cured powder coating thereon, wherein the powder coating is applied in dry form without use of an organic solvent.